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## NEW LAND SHELLS OF THE CHINESE EMPIRE—I.

BY H. A. PILSBRY AND Y. HIRASE.

The following species were collected by Mr. Nakada in the course of several months' work, chiefly in the north. A more ample report will be published later. Working chiefly in the densely populated northeastern provinces and not far from the coast, the number of species taken was naturally not great, though some, such as *Vallonia patens* Reinh., *Eulota? munieriana* Cr. & Deb., etc., are forms hitherto but little known. Around Soochow and Hangchow a fauna richer in *Clausiliæ*, *Helices* and *Cyclophoridae* was encountered, most of the species in this region being among those described by Père Heude and earlier naturalists.

## DIPLOMMATINIDÆ.

***Diplommatina hangchowensis*** n. sp. Fig. 1.

The shell is short, cylindric, the summit shortly conic, base rounded; corneous or pale brownish, somewhat translucent, the upper part whitish or pale red. Whorls  $5\frac{1}{2}$ , very convex.

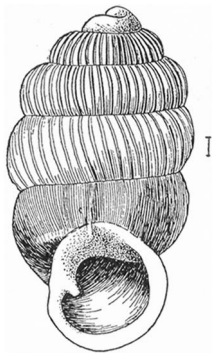


Fig. 1.—*Diplommatina hangchowensis*.

The first whorl is smooth; following whorls are very finely and delicately rib-striate; on the penultimate whorl the ribs are much weaker, and the last whorl is smooth. In back view the penultimate whorl is largest, the last whorl much smaller and quite glossy, ascending a little near its end, and constricted in front, above the columella. A short palatal plica shows through, just left of the parietal callus. The aperture is nearly circular. The peristome is expanded and thickened, with a flat face and inconspicuous inner rim; at the base of the columella it is very indistinctly angular; it is

interrupted above, the margins joined by a thin parietal callus, with thin adnate edge. Columellar lamella well developed.

Length 2.4, diam. 1.3 mm., alt. of aperture 0.95 mm.

Hangchow, province of Che-kiang, China. Types No. 94,748 A. N. S. P., from No. 1,479a of Mr. Hirase's collection.

This species of the section *Sinica* is smaller than *D. paxillus* Gredler, and differs by its smooth last whorl and very short palatal plica. It is more related to *D. hungerfordiana* of Formosa, which differs in shape. *D. schmackeri* Mlldff. is unlike *hangchowensis* by the shape of the aperture.

A variety also from Hangchow may be called *D. hangchowensis granum*. It is larger, length 2.7, diam. 1.5 mm., with 6 whorls and pale reddish-corneous color. The cone of the spire is longer than in *D. hangchowensis*.

#### HYDROCENIDÆ.

The genus *Georissa* is represented by six species in China: *G. bachmanni* Gredl., *G. sinensis* Hde., *G. nivea* Hde., *G. sulcata* Mlldff., *hungerfordiana* Mlldff., and *G. heudei* P. & H. In all of these except *sinensis* and *heudei* the glossy, flat operculum is retracted some distance in the aperture. This is the normal condition in *Georissa*.

In *G. sinensis* and *G. heudei* the thick, calcareous operculum lodges at the edge of the peristome, as in *Bithynia*, being larger than in *Georissa* proper. We propose to signalize this feature by the erection of a new subgenus *Georissopsis*, the type being *G. heudei*.

*Georissa* (*Georissopsis*) *heudei* n. sp. Fig. 2.

The shell is minutely perforate or subperforate, conic, higher than wide, gray, more or less reddish in places, sculptured with very fine,

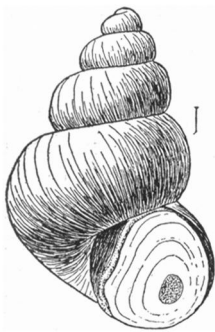


Fig. 2.—*G. heudei* and outline of operculum, interior view.

close spiral striae, usually in large part lost by erosion. There are  $3\frac{1}{2}$  to  $3\frac{3}{4}$  whorls, the first corneous and glossy, the rest very convex, separated by deep sutures. The aperture is subvertical, broadly semicircular, the outer margin very convex, inner margin nearly straight; the basal margin is very broadly rounded, the upper end narrowly rounded. The peristome is thin, acute; the inner lip is built forward,

standing free from the whorl except for a short space near the posterior end, leaving an umbilical area.

Length 3.4, diam. 2.1 mm.

The operculum lodges at the lip-edge. It is between triangular and

semicircular in shape, calcareous, thick, white, with a dark nuclear dot *nearer the outer border*; around this it has concentric growth-lines. The inner face is concave. Near the lower third a stout rib arises about the middle of the width, running to the columellar border where it projects as a short point.

Hangchow, province Che-kiang, China. Types No. 94,745 A. N. S. P., from No. 1,477 of Mr. Hirase's collection.

This species is very similar to *G. sinensis* (Hde.) in characters of the shell, but it differs in the operculum, which is figured as with subcentral nucleus in *G. sinensis*, while in *G. heudei* the nucleus is near the outer border. We have no reason to doubt the accuracy of Heude's figure. It was drawn by Rathouis, whose faithful drawings have probably never been surpassed. Unfortunately Père Heude, who described *G. sinensis* as a *Realia*, did not describe the operculum, merely saying that "l'opercule est celui du genre."

Some specimens from Changyang, received as *G. sinensis*, are much smaller than Père Heude's type. They have a dark, subcentral nuclear dot.

*G. heudei* occurred at Hangchow with the much smaller *G. bachmanni* Gredl.

#### HELICIDÆ.

*Eulota læva* P. and H., n. sp.

The shell is *sinistral*, depressed-globose with conic spire, narrowly half-covered umbilicate, thin, light corneous-yellow. Surface glossy, smooth to the eye, but under a lens it is seen to have very weak, faint growth-lines, the last two whorls *densely, minutely granular*, the granu-

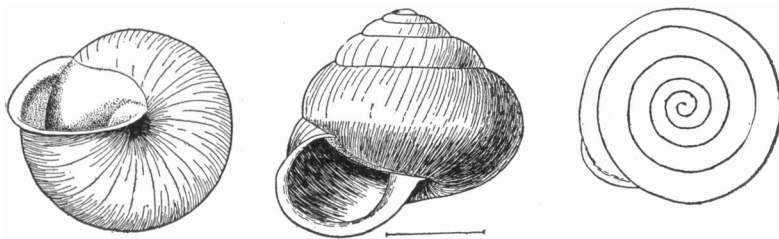


Fig. 3.—*E. læva*, basal, front and dorsal views.

lation weak on the upper surface, more distinct on the base; there are also some weak traces of a few coarse, impressed spirals on the last whorl. The spire is conic with slightly convex outlines and obtuse apex. Whorls  $5\frac{1}{2}$ , slowly increasing convex, the last descending a little

to the aperture and indistinctly angular in front, the base very convex. The aperture is quite oblique, the upper and baso-columellar margins about equally arcuate, the outer arc more strongly curved. The peristome is thin, narrowly but well expanded, the baso-columellar margin reflexed, somewhat dilated towards the columellar insertion.

Alt. 12.5, diam. 13.8 mm.; aperture 7.5 mm. high, 8 wide.

Hangchow, province Che-kiang, China. Type No. 94,739, A. N. S. P., from No. 1,475 of Mr. Hirase's collection.

This is a more compact shell than *Eulota fortunei* and quite different in sculpture. The generic position is uncertain, until the soft anatomy can be examined. It may belong to the section *Eulotella*, or it may be a *Ganesella*. The minute granulation is like some species of the *G. japonica* group. We do not know of any sinistral *Ganesella*, but there are many sinistral species of *Eulota*.

Dead and bleached shells which have lost the cuticle do not show the granulation described above. The largest example seen measures, alt. 12, diam. 16.5 mm. It is a dead shell.

***Eulota (Plectotropis) scitula*** P. and H., n. sp. Fig. 4.

The shell is rather narrowly umbilicate, conic above, convex below, strongly angular at the periphery; uniform chestnut brown. The surface is rather dull, finely closely and rather weakly marked with growth-striae, which in quite fresh, unworn shells bear short adnate cuticular threads on the base, giving it a sparsely scaly appearance. The last two whorls have also a very close, fine sculpture of beautifully even spiral

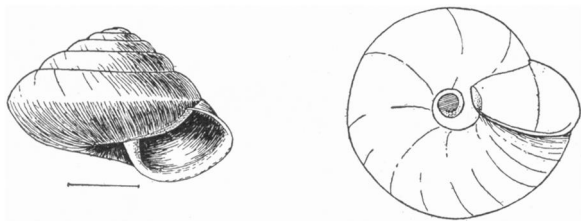


Fig. 4.—*Eulota (Plectotropis) scitula*.

striae. The outlines of the conic spire are nearly straight. Whorls  $6\frac{1}{2}$ , slowly increasing, moderately convex, the last descending very little or not at all in front, convex beneath. The aperture is strongly oblique, rounded lunate. Peristome thin, narrowly but distinctly expanded, the basocolumellar margins a little reflexed, dilated towards the columellar insertion; ends widely separated, joined by a thin film.

Alt. 6.5, diam. 9.2 mm.; aperture alt. 4, width 4.6 mm.; umbilicus 1.7 mm. wide.

Alt. 6.5, diam. 9 mm.

Hangchow, province Che-kiang, China. Types No. 94,741 A. N. S. P., from No. 1,471 of Mr. Hirase's collection.

A small, beautifully sculptured shell, which we are unable to identify with any of Pèrè Heude's species from the lower Yangtse valley. It has some resemblance to *E. inornata* and belongs to a group of thin, dull species with the shell spirally engraved, cuticular scales small or wanting, and usually with no peripheral fringe. Other species of this group are *E. osbecki*, *inornata*, *hachijoensis*, *fulvicans*, *lautsi*, *micra*, *perplexa*, *inrinensis*, *hebes*, etc.

**Chloritis impotens** P. and H., n. sp. Fig. 5.

Shell depressed-globose, narrowly umbilicate, thin and fragile, corneous-brown. The surface has a somewhat silky sheen, and under the lens is seen to be densely set with small granules, which are long in the direction of growth-lines, and arranged in oblique, forwardly descending rows, though this arrangement is not everywhere visible, being in part or wholly lost near the mouth. This granular sculpture extends almost to the apex, only the initial half whorl or less being smoothish, though not glossy. On the last two whorls the granules

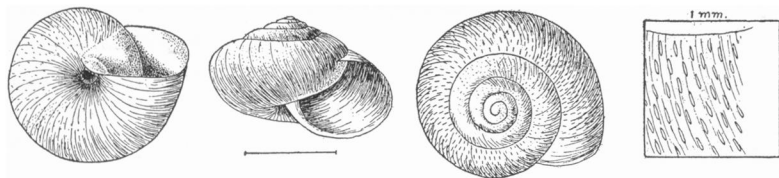


Fig. 5.—*C. impotens*, basal, front and dorsal views, and sculpture of last whorl below suture.

bear short cuticular appendages in fresh, unworn shells, such as are often present in *Ægista* and *Plectotropis*. The spire is low-conic. Whorls 5, convex, at first slowly increasing, the last one abruptly becoming much wider, about twice the width of the preceding, not noticeably descending in front, rounded at the periphery. The aperture is rounded-lunate, moderately oblique. Peristome thin throughout, the outer and basal margins very slightly expanded, columellar margin broadly, triangularly dilated, half covering the umbilicus.

Alt. 8.7, diam. 12.6 mm.; alt. aperture 6.5, width 7.5 mm.

Chifoo, province Pe-chili, China. Types No. 94,742 A. N. S. P., from No. 1,468 of Mr. Hirase's collection.

A thin, fragile shell, with large aperture and densely, minutely granose-scaly sculpture. In fully adult shells the granulation is more or less worn from the apical and early whorls, and on the last whorl the long granules appear to be glossy, but hardly if at all raised above the dull surface. The generic position of this snail is uncertain, but it has the shell characters of *Trichochloritis* rather than of any group known anatomically to belong to *Eulota*.

#### PUPILLIDÆ.

*Hypselostoma* (*Boysidia*) *hangchowensis* P. and H., n. sp.

The shell is high-conic, with obtuse apex and convex base, minutely perforate, with a long curved umbilical rimation, dark brown. The spire is straightly conic, composed of  $5\frac{1}{2}$  convex whorls. The last whorl ascends slowly to the aperture, its latter part being straightened and built forward to the level of the ventral face of the shell. There is no crest or marked constriction behind the lip. The aperture is truncate-oval, the upper margin straight. Peristome thin, well expanded, continuous; with a shallow dent outside at the upper third of the outer lip. The angular and parietal lamellæ are concrescent into one stout straight lamella reaching to the margin, wider in the middle of its length, where it shows traces of its dual composition. The columellar lamella is strong, slopes obliquely downward as it enters, and the outer end reaches to, but not upon, the expansion of the lip. There are two short palatal plicæ, the lower one somewhat more deeply placed.

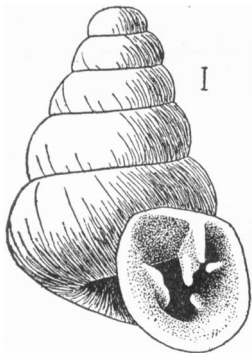


Fig. 6.—*H. hangchowensis*.

Alt. 2.9, diam. 1.8 mm.; largest axis of aperture 1.3 mm.

Hangchow, province Che-kiang, China. Type No. 94,743 A. N. S. P., from Mr. Hirase.

Compared with *H. (Boysidia) hunana* Gredler, this is a much smaller shell, with only two palatal plicæ instead of three, and the angulo-parietal lamella is less distinctly bifid, as seen in an obliquely basal view. It is not closely related to other described species.

*H. hangchowensis* was found with *Bifidaria (Bensonella) plicidens* (Bens.), a species not before reported from China, but found in the Ryukyu Islands, as well as in subhimalayan India.

*H. hunana* as described and figured by Gredler has the last whorl

built forward, carrying the aperture free from the preceding whorl. We have not seen this form; the specimens of *hunana* before us, while agreeing with Gredler's description in other characters, do not have the last whorl free in front, though the peristome is continuous. They are like Père Heude's figures of *hunana*. Dr. von Möllendorff has unnecessarily altered the name *hunana* to *hunanensis*.

We share with Gredler the opinion that *Boysidia* is a section or sub-genus of *Hypselostoma* rather than a distinct genus.